NOAA Climate Testbed Memorandum

FY06 in Retrospect

Accomplishments

Official Product Improvements:

An objective consolidation tool that contributed to improved skill of official US seasonal temperature and precipitation forecasts (see following caveats);

- An objective verification system for CPC official 6-10 day, 8-14 day, monthly and seasonal US temperature and precipitation forecasts.

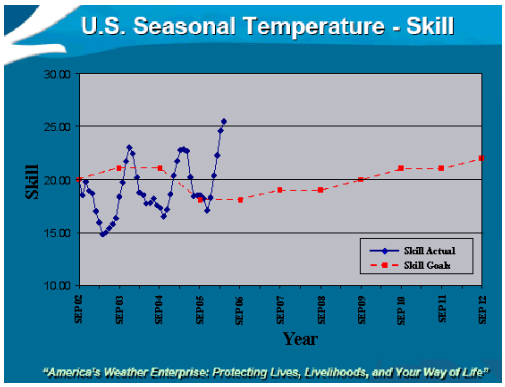
Tools for Evaluation of Future Model Improvements:

- A standard suite of diagnostics for evaluation of potential CFS/GFS upgrades; Atlas
- Twice Daily CFS hindcasts (1981-present) on public server;
- A 25-year GLDAS run for use in hindcast / simulation experiments.

Improvements to ocean-atmosphere-land components of CFS:

- A long term erroneous temperature error in the operational GODAS was eliminated;
- A new land surface model (Noah) was coupled to CFS and tested.

Skill Goal – vs – Actual Skill



Courtesy Mike Halpert

(0.5 month lead; 4-year running means)

* Base level of skill adjusted downwards in the wake of the 97-98 El Nino

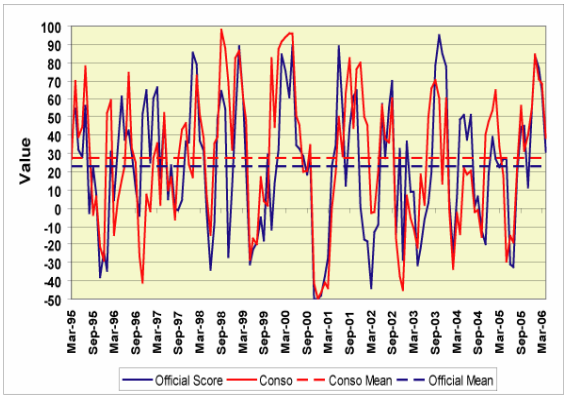
Caveats

1. *Skill Goal –vs – Actual Skill (Figure on the right)*

   There is a need to accelerate improvements in NOAAs Official Seasonal Forecasts.

   - Recently there has been a string of very good forecasts, which have raised skill levels well above the current target level.
   - These skillful forecasts can be attributed, at least in part, to CTB/CPC efforts during FY06 to implement a skill weighted consolidation scheme in operational seasonal prediction.

US Seasonal Temperature – Skill
Official (blue) –vs- Consolidation (red)



(Courtesy Mike Halpert and Huug vandenDool)

2. *Actual Skill -vs- Consolidation (Figure on the left)*

   - When the scheme is applied to 1995-present on a combination of in-house methods (CCA, OCN, SMLR and CFS), we find that we would have scored better on US temperature by some 10-20%.
   - Gains in the skill of precipitation forecasts are also noteworthy.
   - Ongoing efforts to consolidate tools may improve these forecasts further and help to reset the base level of skill above current skill (GPRA) goals.
   - Bottom line: CTB is attempting to increase benefits from the investments we make in the seasonal forecast arena.